



# CONFORMANCE TEST REPORT FOR EN 301489-1/-6

**Report No.: 60.861.9.070.01E**

Client: Vtech Telecommunications Ltd.  
Product: DECT Phone  
Model: E1425 (PP)  
Manufacturer/supplier: Vtech Telecommunications Ltd.

Date test item received: 2009/07/29  
Date test campaign completed: 2009/08/05  
Date of issue: 2009/08/06  
Test results: **COMPLIED**

**The test result only corresponds to the tested sample. It is not permitted to copy this report, in part or in full, without the permission of the test laboratory.**

*Total number of pages of this test report: 16 pages*

Approved by

Jeff Pong

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## 2 GENERAL INFORMATIONS

### 2.1 Description of EUT:

The Test Candidate is a portable part with integrated antennas of a cordless telephone system for 3.1 kHz voice-communications on DECT Feature Phone-standard. For the integrated antennas a diversity-switch is included to the equipment. This portable part (PP) is used in combination with a fixed part (FP) for connections to the analogue public switched telephone network.

### 2.2 Related Informations of EUT:

Power Supply : 2.4 Vdc

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Power Line : ☐ Nonshielded ☐ Shielded ☒ None , length: \_\_\_\_\_ m

Ears Line : ☐ Nonshielded ☐ Shielded ☒ None , length: \_\_\_\_\_ m

Control Line : ☐ Nonshielded ☐ Shielded ☒ None , length: \_\_\_\_\_ m

TEL. Line : ☐ Nonshielded ☐ Shielded ☒ None , length: \_\_\_\_\_ m

Signal Line : ☐ Nonshielded ☐ Shielded ☒ None , length: \_\_\_\_\_ m

\* For more detailed features, please refer to User's Manual.

### 2.3 Modification Record:

No modifications were required. (That mean the EUT has complied with the requirement as tested.)

### 3 SUMMARY OF TEST RESULTS

#### 3.1 Emissions:

##### 3.1.1 Radiated Emissions

■-PASS

Peak EMI value to the limit: -4.3 dB at 949.459 MHz

#### 3.2 Immunity:

##### 3.2.1 Immunity Criteria:

The results of all of the immunity tests performed on the EUT were evaluated according to the following criteria, and according to the manufacturer's specifications for the EUT:

##### **Performance criterion for Continuous Phenomena applied to DECT Phone Transceivers (CT):**

The BER of the signal as measured shall not exceed  $1 \times 10^{-3}$  during the test sequence. Additionally for equipment containing analogue speech circuits the speech output signal level shall be at least 35dB less than the previously recorded reference level. At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data and the communications link shall have been maintained during and after tests. Where the EUT is capable of transmission, tests shall be performed to ensure that unintentional transmission does not occur.

##### **Performance criterion for Transient phenomena applied to DECT Phone Transceivers (TT):**

At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communications link. At the conclusion of the total test comprising the series of individual exposures the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communications link shall have been maintained. Where the EUT is capable of transmission, tests shall be performed to ensure that unintentional transmission does not occur.

##### **Performance criterion for Continuous phenomena applied to DECT Phone Receive-only equipment (CR):**

The primary functions shall be verified during each individual exposure in the test sequence. Additionally for equipment containing analogue speech circuits the speech output signal level shall be at least 35 dB less than the previously recorded reference level. At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communications link shall have been maintained. This shall be verified by checking the primary functions.

##### **Performance criterion for Transient phenomena applied to DECT Phone Receive-only equipment (TR):**

At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communications link. At the conclusion of the total test comprising the series of individual exposures the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communications link shall have been maintained. This shall be verified by checking the primary functions.

**3.2.2 Electrostatic Discharge:****■-PASS**

For transceivers the general performance criteria TT shall apply. For stand alone receivers the general performance criteria TR shall apply. For ancillary equipment the pass/fail criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with receivers or transceivers in which case the corresponding performance criteria above shall apply.

**3.2.3 Radio Frequency Electromagnetic Field (80~1000MHz and 1400~2700MHz):****■-PASS**

For transceivers the general performance criteria CT shall apply. For stand alone receivers the general performance criteria CR shall apply. For ancillary equipment the pass/fail criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with receivers or transceivers in which case the corresponding performance criteria above shall apply.

## 4 TEST DATA & RELATED INFORMATION

### 4.1 Emissions:

#### 4.1.1 Radiated Emissions Test:

##### 4.1.1.1 Radiated Emissions Test Data:

A. Operating Conditions of the EUT: Talking Mode

Test Date: Jul. 31, 2009

|                              |                                   |                  |                         |
|------------------------------|-----------------------------------|------------------|-------------------------|
| Test Specification           | EN 55022:2006 (Class B)           |                  |                         |
| Test Equipment               |                                   | Calibration Date | Recommended Recal. Date |
| EMI Test Receiver\R&S\ESCS30 |                                   | Nov. 03, 2008    | Nov. 02, 2009           |
| Ant.- LogBiconi\EMCO\3142    |                                   | May 12, 2009     | May 11, 2010            |
| Spectrum\R&S\FSU             |                                   | Nov. 25, 2008    | Nov. 24, 2009           |
| Horn Ant.\EMCO\3115          |                                   | Jun. 12, 2009    | Jun. 11, 2010           |
| Preamp\HP\8449B              |                                   | Oct. 09, 2008    | Oct. 08, 2009           |
| Climatic Condition           | Ambient Temperature: <u>26°</u> C |                  |                         |

Measurement Distance: 10 m ( 30MHz~1GHz )

| Emission Frequency (MHz) | Meter Reading (dBuV) |       | CORR'd Factor (dB/m) | Results (dBuV/m) |       | Limit (dBuV/m) | Margins (dB) |
|--------------------------|----------------------|-------|----------------------|------------------|-------|----------------|--------------|
|                          | HOR.                 | VERT. |                      | HOR.             | VERT. |                |              |
| 82.485                   | ***                  | 14.1  | 8.9                  | ***              | 23.0  | 30.0           | -7.0         |
| 125.250                  | 8.8                  | ***   | 9.4                  | 18.2             | ***   | 30.0           | -11.8        |
| 175.791                  | 5.8                  | ***   | 11.6                 | 17.4             | ***   | 30.0           | -12.6        |
| 224.388                  | ***                  | 9.3   | 13.2                 | ***              | 22.5  | 30.0           | -7.5         |
| 259.378                  | ***                  | 9.8   | 16.4                 | ***              | 26.2  | 37.0           | -10.8        |
| 504.308                  | ***                  | 1.4   | 23.9                 | ***              | 25.3  | 37.0           | -11.7        |
| 543.186                  | 1.4                  | ***   | 24.5                 | 25.9             | ***   | 37.0           | -11.1        |
| 589.839                  | 1.5                  | ***   | 26.2                 | 27.7             | ***   | 37.0           | -9.3         |
| 622.885                  | ***                  | 2.8   | 26.6                 | ***              | 29.4  | 37.0           | -7.6         |
| 757.014                  | 1.5                  | ***   | 29.3                 | 30.8             | ***   | 37.0           | -6.2         |
| 943.627                  | 0.9                  | ***   | 31.7                 | 32.6             | ***   | 37.0           | -4.4         |
| 949.459                  | ***                  | 1.0   | 31.7                 | ***              | 32.7  | 37.0           | -4.3         |

Measurement Distance: 3m (1GHz~6GHz)

| Emission<br>Frequency<br>(MHz) | Meter Reading@3m<br>(dBuV) |      |       |      | CORR'd<br>Factor<br>(dB/m) | Max Results<br>(dBuV/m) |       | Limit@3m<br>(dBuV/m) |    | Margins<br>(dB) |
|--------------------------------|----------------------------|------|-------|------|----------------------------|-------------------------|-------|----------------------|----|-----------------|
|                                | HOR.                       |      | VERT. |      |                            | HOR.                    | VERT. |                      |    |                 |
|                                | PK                         | AV   | PK    | AV   |                            | PK                      | AV    | PK                   | AV |                 |
| 3796.482                       | 51.7                       | 32.1 | 52.4  | 32.9 | -3.2                       | 49.2                    | 29.7  | 74                   | 54 | -24.3           |
| 5695.515                       | 51.6                       | 31.9 | 52.7  | 33.1 | -0.4                       | 52.3                    | 32.7  | 74                   | 54 | -21.3           |

- Notes: 1) Place of Measurement: Measuring site of the ETC (3F)  
 2) Measurement Distance: 10 m ( 30MHz~1GHz ), 3m (1GHz~6GHz)  
 3) Height of table on which the EUT was placed: 0.8 m  
 4) Height of Receiving Antenna: 1 - 4 m  
 5) Example Calculation: result for 82.485 MHz  $14.1 + (8.9) = 23.0 \text{ dB } \mu \text{ V/m}$   
 6) ① If the data table appeared symbol of "\*\*\*" means the value was too low to be measured.  
 ② If the data table appeared symbol of "----" means the Q.P. value is under the limit for AVG. so, the AVG. value doesn't need to be measured.  
 ③ If the data table appeared symbol of "#" means the noise was low, so record the peak  
 7) The estimated measurement uncertainty of the result measurement is  $\pm 5.06$ , 95%, K=2, (30 MHz-1000 MHz)

#### 4.1.1.2 Radiated Emissions Test Setup Photos:





## 4.2 Immunity:

### 4.2.1 Electrostatic Discharge:

#### 4.2.1.1 Electrostatic Discharge Test Data:

##### A. Operating Conditions of the EUT: Talking Mode

Test Date: Aug. 05, 2009

|                                      |  |                  |                         |
|--------------------------------------|--|------------------|-------------------------|
| Test Specification                   | EN 61000-4-2: 1995/A2:2001   |                  |                         |
| Test Equipment                       |  | Calibration Date | Recommended Recal. Date |
| ESD Simulator\Noiseken\ESS-2000-G365 |  | Nov. 26, 2008    | Nov. 25, 2009           |
| Climatic Condition                   | Ambient Temperature: <u>23</u> °C                      Relative Humidity: <u>50</u> % RH |                  |                         |
|                                      | Atmospheric Pressure: <u>997</u> mbar  |                  |                         |
| Power Supply System                  | DC Power: <u>2.4</u> Vdc   |                  |                         |
| Test Set-up                          | Table-top Equipment  |                  |                         |

| Test Points        | Contact Discharge (kV):<br>Criterion |              |        |        |        | Air Discharge (kV):<br>Criterion |              |              |         |        | Test times and<br>voltage at each<br>condition |          |
|--------------------|--------------------------------------|--------------|--------|--------|--------|----------------------------------|--------------|--------------|---------|--------|--|----------|
| 1.EUT-VCP          | ■2: <u>A</u>                         | ■4: <u>A</u> | □ 6: _ | □ 8: _ | □ _: _ | □ 2: _                           | □ 4: _       | □ 8: _       | □ 15: _ | □ _: _ | ■10..neg                                       | ■10..pos |
| 2.EUT-HCP          | ■2: <u>A</u>                         | ■4: <u>A</u> | □ 6: _ | □ 8: _ | □ _: _ | □ 2: _                           | □ 4: _       | □ 8: _       | □ 15: _ | □ _: _ | ■10..neg                                       | ■10..pos |
| 3.EUT-charge point | ■2: <u>A</u>                         | ■4: <u>A</u> | □ 6: _ | □ 8: _ | □ _: _ | □ 2: _                           | □ 4: _       | □ 8: _       | □ 15: _ | □ _: _ | ■10..neg                                       | ■10..pos |
| 4.EUT-Top Side     | □ 2: _                               | □ 4: _       | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u>                     | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg                                       | ■10..pos |
| 5.EUT-Bottom Side  | □ 2: _                               | □ 4: _       | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u>                     | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg                                       | ■10..pos |
| 6.EUT-Front Side   | □ 2: _                               | □ 4: _       | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u>                     | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg                                       | ■10..pos |
| 7.EUT-Rear Side    | □ 2: _                               | □ 4: _       | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u>                     | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg                                       | ■10..pos |
| 8.EUT-Right Side   | □ 2: _                               | □ 4: _       | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u>                     | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg                                       | ■10..pos |
| 9.EUT-Left Side    | □ 2: _                               | □ 4: _       | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u>                     | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg                                       | ■10..pos |

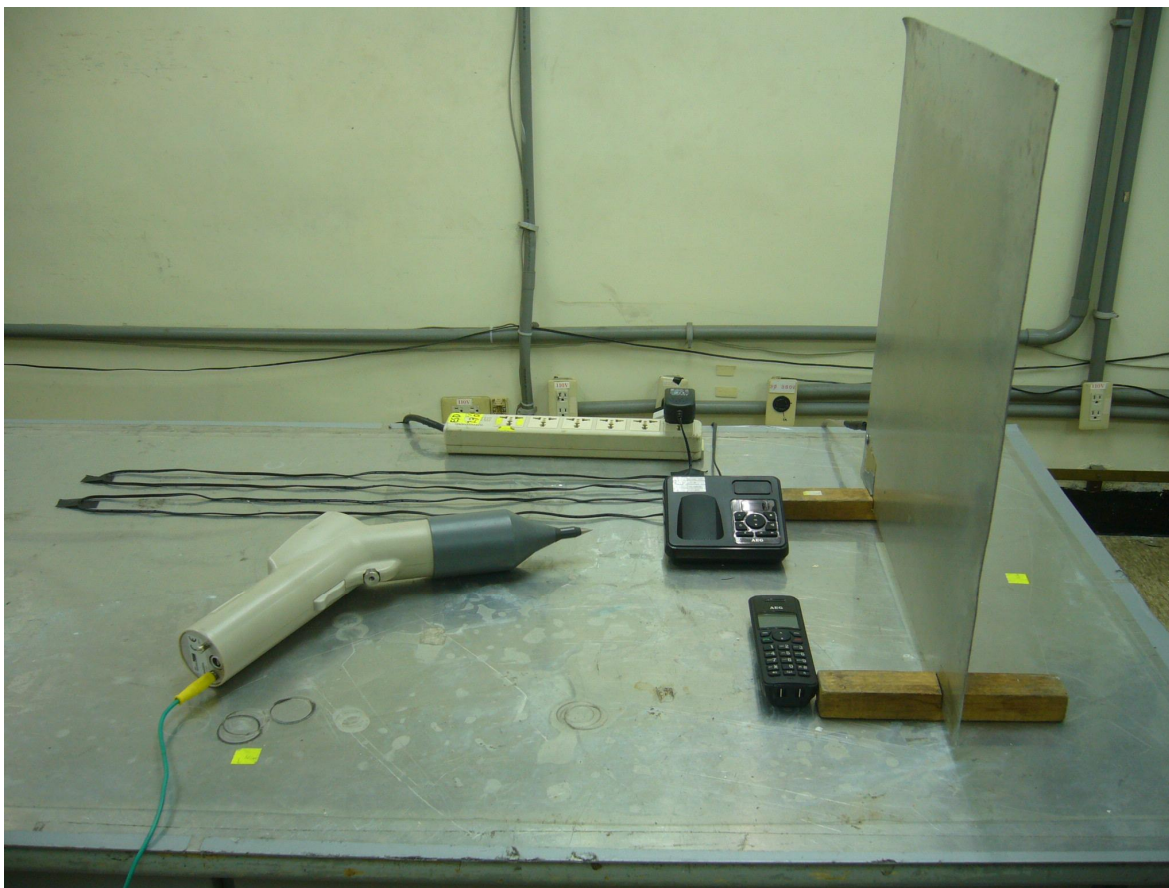
|                     |                                   |                |          |
|---------------------|-----------------------------------|----------------|----------|
| Result:             | ■ Complied      □ Does not comply |                |          |
| Criterion Required: | <u>B</u>                          | Criterion Met: | <u>A</u> |

Note: “A” means the EUT operates with ■ no loss of functions.

■ no unintentional responses during and after test.

“--” means the test is not applicable.

#### 4.2.1.2 Electrostatic Discharge Test Setup Photos:



**4.2.2 Radio Frequency Electromagnetic Field (80~1000MHz and 1400~2700MHz):****4.2.2.1 Radio Frequency Electromagnetic Field Test Data:****A. Operating Conditions of the EUT: Talking Mode**

Test Date: Aug. 03, 2009

|   |  |                         |
|---|--|-------------------------|
| Test Specification                        | EN 61000-4-3:2006/A1:2008  |                         |
| Test Equipment                            | Calibration Date   | Recommended Recal. Date |
| Microphone\B&K\4134                       | Nov. 20, 2008  | Nov. 19, 2009           |
| Conditioning Amplifier\B&K\type 2690      | Nov. 20, 2008  | Nov. 19, 2009           |
| Audio Analyzer\R&S\UPV                    | Jan 30, 2009   | Jan 29, 2010            |
| IMS Integrated Measurement System\R&S\IMS | Sep. 29, 2008  | Sep. 28, 2009           |
| RF Power Amplifier\AR\50S1G4AM1           | Jun. 03, 2009  | Jun. 02, 2010           |
| RF Power Amplifier \AR\250W1000AM1        | Jun. 03, 2009  | Jun. 02, 2010           |
| DECT Tester\R&S\CTS60                     | Mar. 03, 2009  | Mar. 02, 2010           |
| Climatic Condition                        | Ambient Temperature: <u>24</u> °C      Relative Humidity: <u>56</u> % RH |                         |
| Power Supply System                       | DC Power: <u>2.4</u> Vdc   |                         |
| Test Set-up                               | Table-top Equipment  |                         |

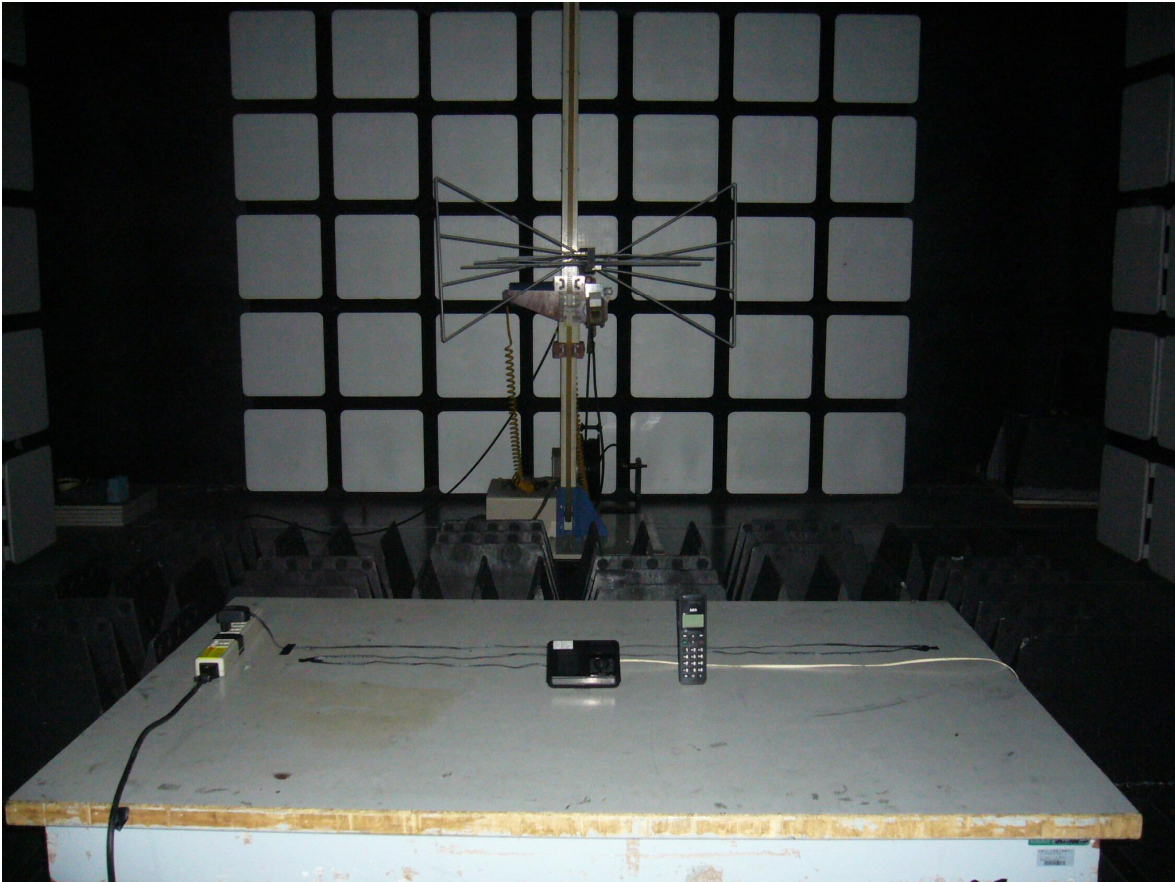
|  |  |                          |
|--|--|--------------------------|
| Frequency Range : <u>80</u> MHz ~ <u>1000</u> MHz<br><u>1400</u> MHz ~ <u>2700</u> MHz | Field Strength: <u>3</u> V/m                       | Modulation (AM 1kHz 80%) |
| Sweep Rate: $\leq 1.5 \times 10^{-3}$ decades/s  | Step Size: $\leq 1$ % of preceding frequency value | Dwell Time: <u>2.9</u> s |
| Frequency Range (MHz)  | Polarization of Device                             | Test Result              |
| 80~1000  | Vertical   | A                        |
| 80~1000  | Horizontal   | A                        |
| 1400~2700  | Vertical   | A                        |
| 1400~2700  | Horizontal   | A                        |

Note: “A ” means the EUT operates with

- BER less or equal than  $1 \times 10^{-3}$  during the test sequence.
- the speech output signal level at least 35dB less than the previously recorded reference level.
- no loss of user control functions or stored data and maintained communication link during and after the tests.
- no unintentional transmission.

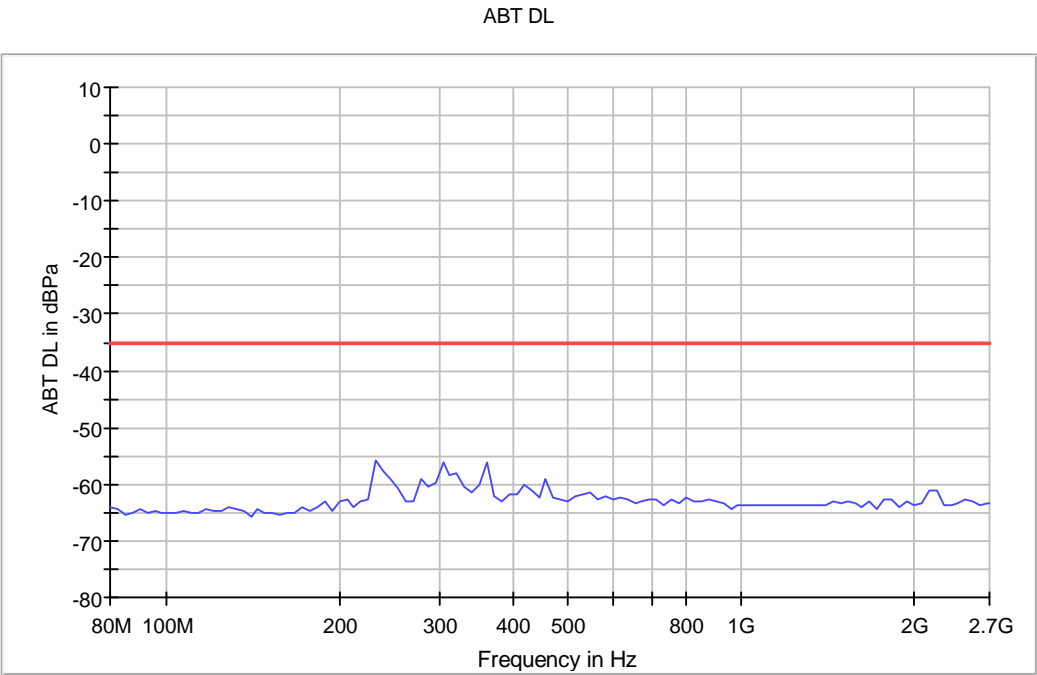
Remarks: Testing has been conducted at 3-meter anechoic chamber.

**4.2.2.2 Radio Frequency Electromagnetic Field (80~1000MHz and 1400~2700MHz)  
Test Setup Photos:**



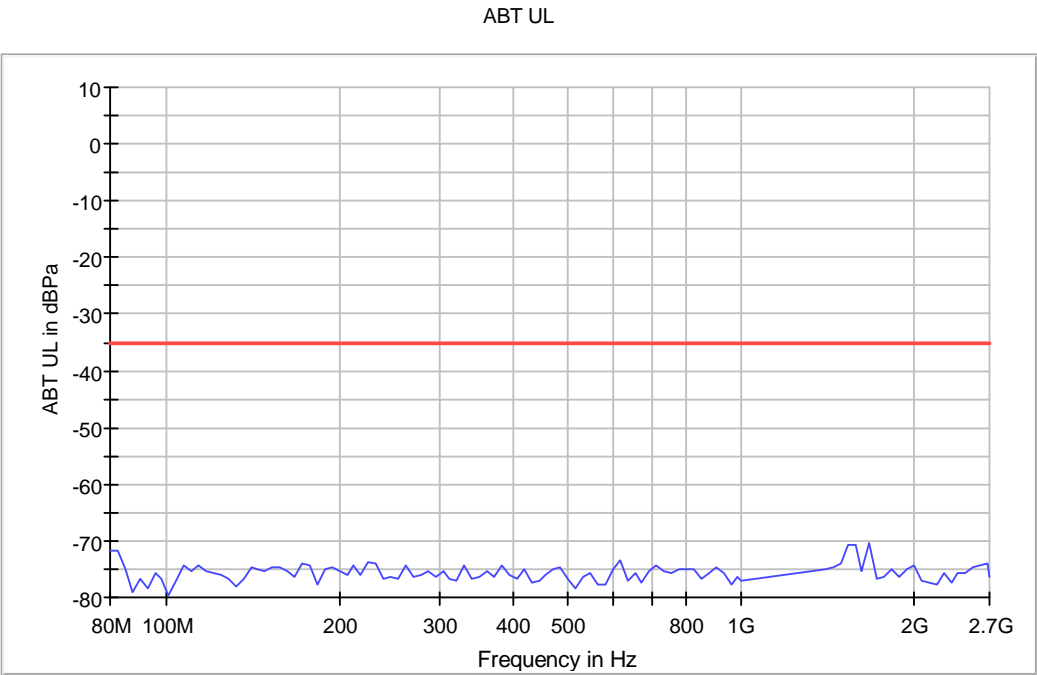
Common Information

|                       |      |
|-----------------------|------|
| Test Description:     | Hor  |
| Operating Conditions: | DL   |
| Operator Name:        | Eric |
| Comment:              |      |



Common Information

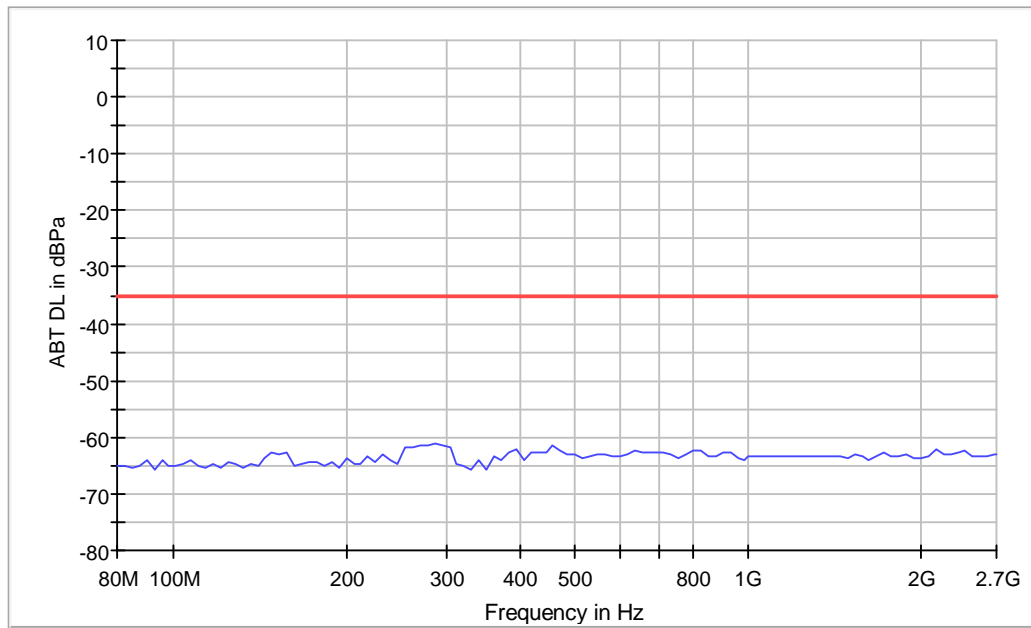
Test Description: Hor  
Operating Conditions: UL  
Operator Name: Eric  
Comment:



## Common Information

|                       |      |
|-----------------------|------|
| Test Description:     | Ver  |
| Operating Conditions: | DL   |
| Operator Name:        | Eric |
| Comment:              |      |

ABT DL



Common Information

|                       |      |
|-----------------------|------|
| Test Description:     | Ver  |
| Operating Conditions: | UL   |
| Operator Name:        | Eric |
| Comment:              |      |

